

## **Power Distribution Unit (PDU)**

**9890 000 02601**

Tech. No. 4512 104 70731/2

### **FILING INSTRUCTIONS**

File this documentation in binder:

SUBSYSTEM manual OPTIMUS R/F



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**Philips Medical Systems DMC GmbH**

**SERVICE MANUAL**

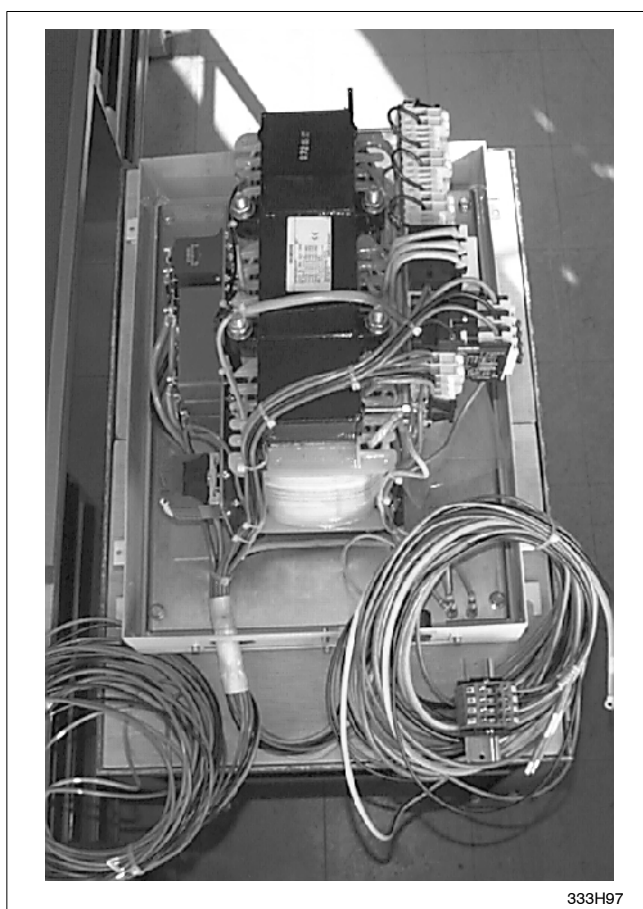
**742**

**UNIT**

## **Power Distribution Unit (PDU)**

**9890 000 02601**

Techn. No. 4512 104 70731/2



333H97

Adaptation transformer 440/480 V for the OPTIMUS R/F generator

DMC Hamburg

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**SERVICE MANUAL - UNIT****Power Distribution Unit (PDU)**

Author: G. Kramm

Type No.: 9890 000 02601

Techn. No.: 4512 104 70731/2

In case there are any questions concerning this manual,  
please send this LOPAD via fax to 49/(0)40/5078 2481

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**List of pages and drawings (LOPAD)**

**Manual Order No: 4512 984 07552**  
**released: 10/2002**

0.5

1

2

3...8 (02.0)

Z-1.4 (01.0) A4 4512 982 0099.

Z-6.2 (97.0) A4 4512 982 0099.

Z1-1 (98.0) A3 4512 983 06451

Z1-2.2 (c/97.0) A3 4512 983 05931

2Z-10 (97.0) A4 4512 983 06441

P-List 9890 000 02601

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## 1. Application / General

The power distribution unit (PDU) is needed for mains adaptation of various X-ray systems in combination with the OPTIMUS R/F generator.

It is required for the following mains:

- 3-phase DELTA, balanced or floating earth
- 3-phase DELTA, grounded.

and with mains voltages > 400V ~ also for:

- 3-phase WYE.

The output voltages of the PDU are needed for the X-ray system and for parts of the generator. The voltage supply of the converter part of the generator does not depend on the PDU.

In addition to the current supply elements the PDU also contains the electrical function of the surge arrester.

## 2. Compatibility

The PDU is compatible with the

OPTIMUS R/F generator     ≥ 9890 000 02161

with

Converter R/F                 ≥ 9890 000 02772

### 3. Technical data

Input	: Mains power connection
Input voltage	: 400 / 440 / 460 / 480V
Input frequency	: 50 / 60Hz $\pm$ 1Hz
Input voltage variation	: $\pm$ 10% of nominal value 440V – 460V +10 / –5% of nominal value 400V + 5 / –10% of nominal value 480V

**Output 1:** Going to generator E, protected and switched in the generator

Output voltage	: L1, L2, L3, N, PE, 400 / 230V 3 phase with neutral
----------------	---

Output current	: 10A (continuous)
----------------	--------------------

Peak output current	: 35A for 10s
---------------------	---------------

**Output 2:** Going to wall junction box MEX

Output voltage	: L1', L2', L3', N, PE, 220 / 127V 3 phase with neutral
----------------	--

Output current	: 15A (continuous), protected and switched in the PDU, controlled in the generator
----------------	--

Peak output current	: 50A for 10s with double plug receptacle on L1, non generator switched: 2x 127V / 15A
---------------------	---

Dimensions	: 920mm x 460mm x 465mm (H x L x W), see also Z-1.4
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Weight	: About 100kg
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### 4. Installation (only when the PDU is retrofitted)

Usually the PDU is placed against the wall on the left of generator cabinet E. The distance between PDU and generator cabinet E is limited to a maximum of 1.5m by the present cable tails.

Though not required for stability, the PDU may be fixed to the floor with 2 screws if desired by the customer. Also see Z-1.4.

In seismic areas the PDU can additionally be fixed to the wall with screws through the holes in the frame.

## 5. Electrical connections

Also see

- Z1-1 Power distribution unit with OPTIMUS R/F
- Z1-2.2 Power supply with mains transformer
- Z2-1.x Cabinet wiring E of generator manual
- Z2-2.x Power supply N of generator manual

**Note:**

The power distribution unit (PDU) must be integrated in the wiring of the power part. In case the generator has not yet been prepared for the installation of the PDU, the following wiring modifications must be carried out before the PDU can be installed:

Preparation of generator E for the installation of the PDU			
Connection going		Activity	Remark
from	to		
ENF1-T1/T2/T3	ENF2-L1/L2/L3	<ul style="list-style-type: none"> <li>Loosen connection at ENF1</li> <li>Tighten the terminals at ENF1</li> </ul>	Current supply of ENF2 provided by the PDU, not by ENF1
ENF1-L1/L2/L3	ENF12-L1/L2/L3	<ul style="list-style-type: none"> <li>Cancel connection</li> <li>Tighten the terminals at ENF1</li> </ul>	Current supply of ENF12 provided by the PDU, not by ENF1
ENF2-L1/L2/L3	ENF12-L1/L2/L3	<ul style="list-style-type: none"> <li>Establish connection</li> </ul>	ENF2 and ENF12 are connected in parallel and supplied by the PDU
EN X2402	EN X2403	<ul style="list-style-type: none"> <li>Cancel connection</li> </ul>	Thermo fuse of the PDU can switch off ENK2 in case of overload
K11-1/3/5	EN X21-01/02/03	<p><i>Only when it must be guaranteed that the geometry segment cannot be connected to 230/400V:</i></p> <ul style="list-style-type: none"> <li>Cancel connection</li> </ul>	EN X21 is a 230 / 400V supply. Output 4 at the PDU provides a supply voltage of 127 / 220V

<b>Connection of the PDU after generator E has been prepared for the installation</b>			
<b>PDU</b>	<b>Wall junction box MEX</b>	<b>Function</b>	<b>Remark</b>
<u>Mains input / primary end of PDU:</u>			
L1	L1	Input phase L1	Cable tail of PDU
L2	L2	Input phase L2	Cable tail of PDU
L3	L3	Input phase L3	Cable tail of PDU
<u>Output 4 of the PDU for the geometry segment, 220 / 127V, 16A (already connected in the PDU):</u>			
K1:L1	L1 / X3:01	Output geometry	Cable tail of PDU
K1:L2	L2 / X3:02	Output geometry	Cable tail of PDU
K1:L3	L3 / X3:03	Output geometry	Cable tail of PDU
N	N / X3:04	Null	Cable tail of PDU
<b>PDU</b>	<b>Generator E</b>		
<u>Mains cable for the generator:</u>			
X2 : 01	ENF1 : L1	Input phase L1 for converter	Cable tail of generator E
X2 : 02	ENF1 : L2	Input phase L2 for converter	Cable tail of generator E
X2 : 03	ENF1 : L3	Input phase L3 for converter	Cable tail of generator E
PE	PE	Protective earth from generator	Cable tail of PDU
<u>Output of the generator 1 - 3, 400 / 220V, 10A / secondary end of the PDU:</u>			
L1	ENF12 : L1	Output 1 to 3 the generator	Cable tail of PDU
L2	ENF12 : L2	Output 1 to 3 the generator	Cable tail of PDU
L3	ENF12 : L3	Output 1 to 3 the generator	Cable tail of PDU
X2 : 04	ENX 3201	Zero of PDU going to generator	Cable tail of generator E
<u>Control leads going to the generator:</u>			
K1 : A1	ENX 2401	Control lead going from E to K1	Cable tail of PDU
T1	ENX 2402	Thermal contact going to the generator	Cable tail of PDU
T2	ENX 2403	Thermal contact going to the generator	Cable tail of PDU
<b>Generator E</b>	<b>MEX</b>		
PE	PE	Protective earth for the generator	Cable tail of generator E



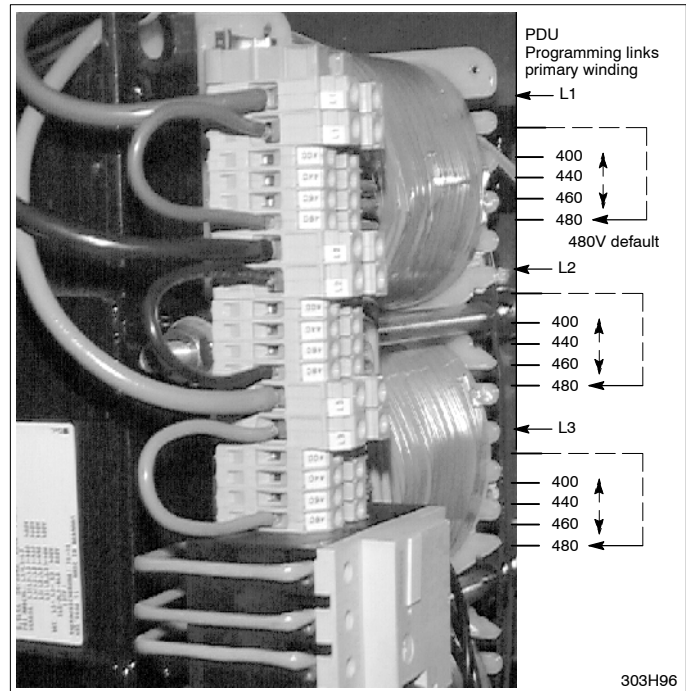
## 6. Setting-to-work

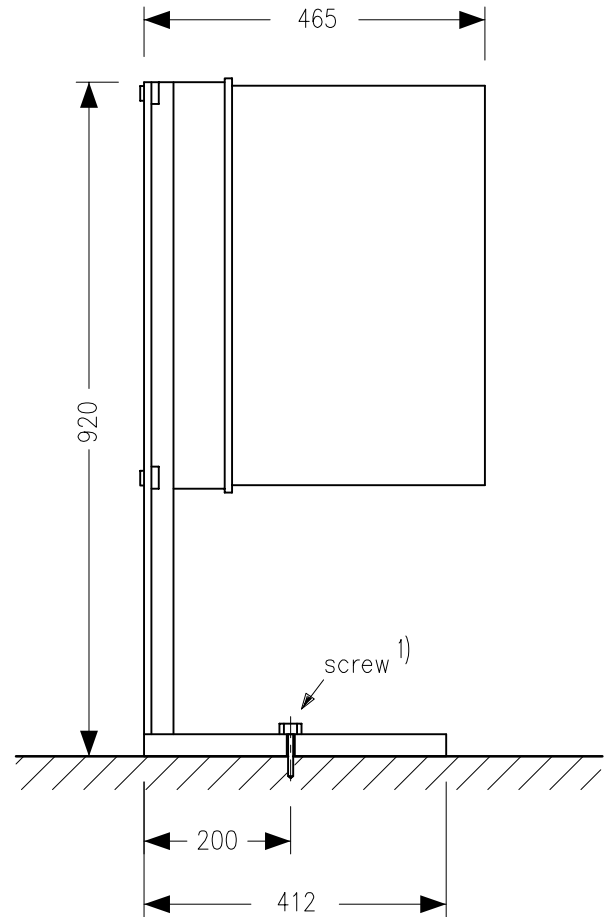
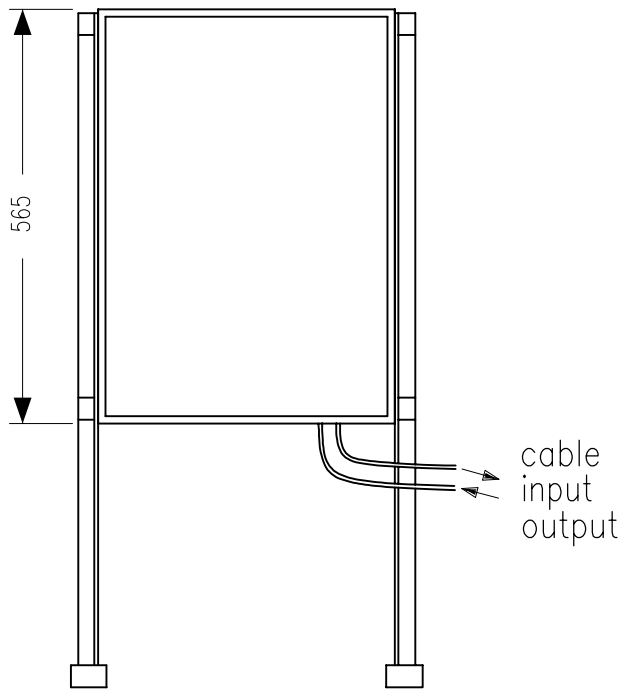
A special setting-to-work procedure is not required.

### 6.1. Programming

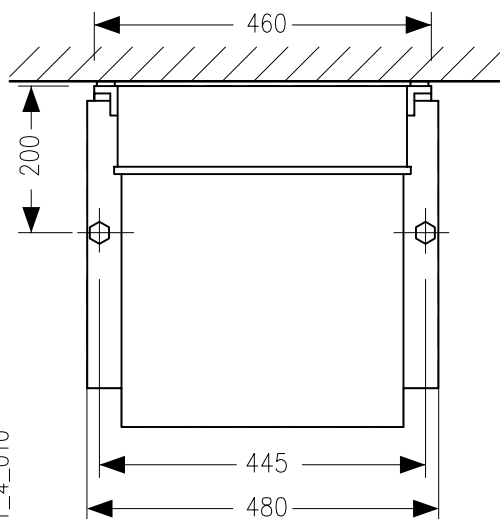
- Connect the programming links of the mains transformer according to the rated voltage of the mains (default 480V).  
Connect 415V mains systems up to the 400V terminal.
- Modify EMC filter EQ 200 in the converter assemblies EQ/E2Q if the generator is operated on a grounded delta mains.

See service documentation for Converter R/F.

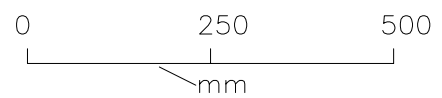




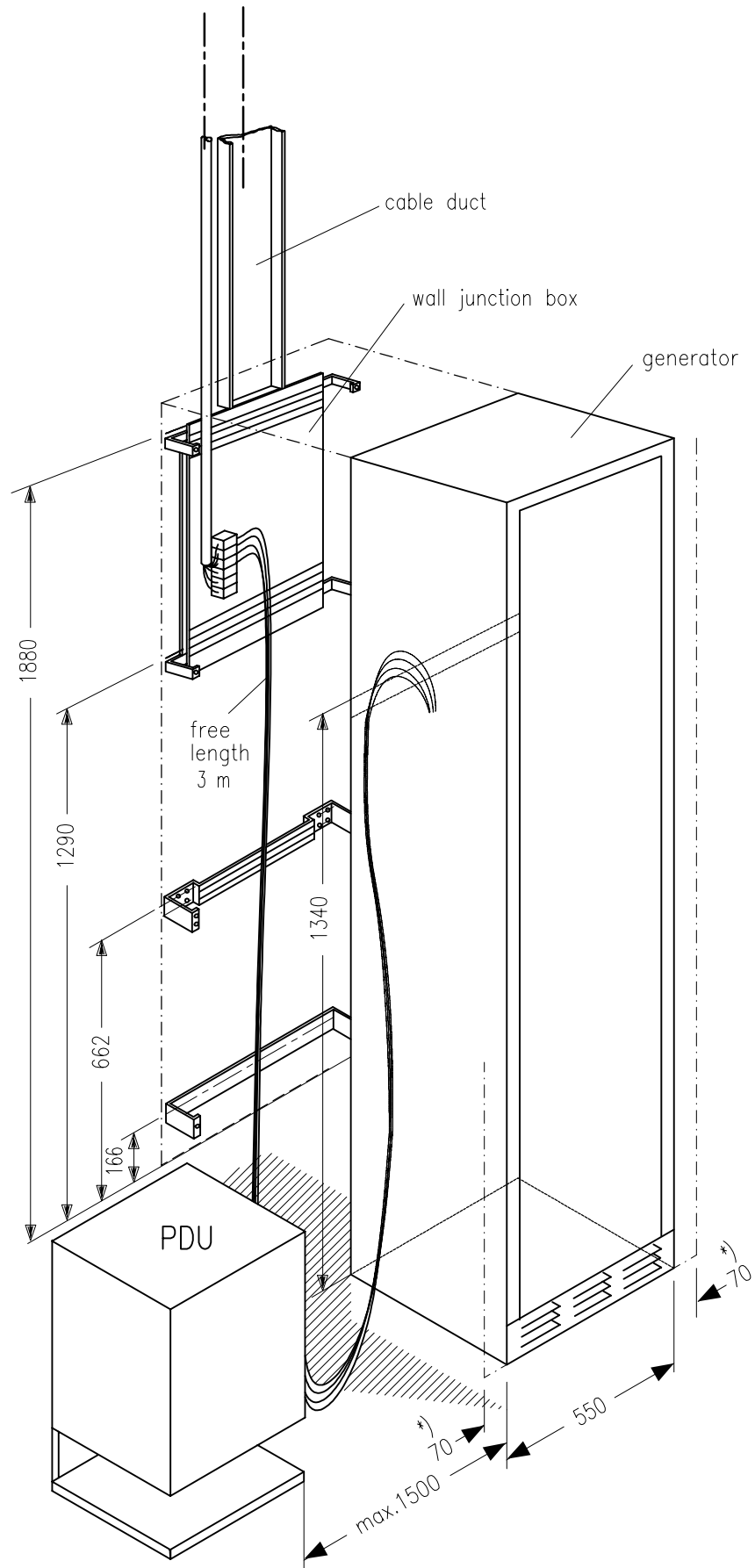
1) Screw connection (screws 7 x 60, dowels 8)  
only when requested. It is actually not needed



Weight 100 kg



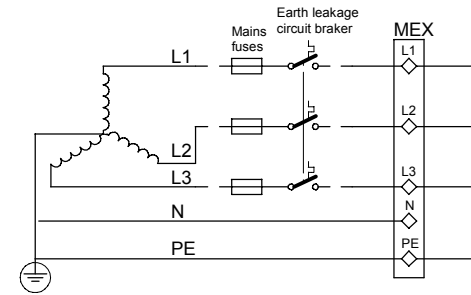
Power distribution unit (PDU)  
9890 000 0260x  
Dimensions and weight



\*) Space with no other cabinets beside them.

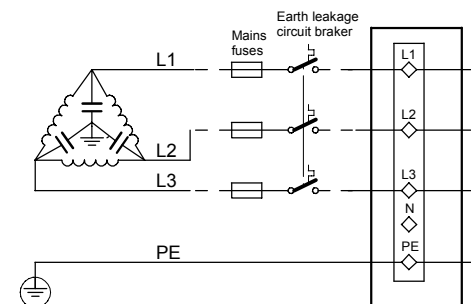
Connection of generator  
with Power Distribution Unit (PDU)

3 phase WYE > 400V:  
Mains transformer is required!

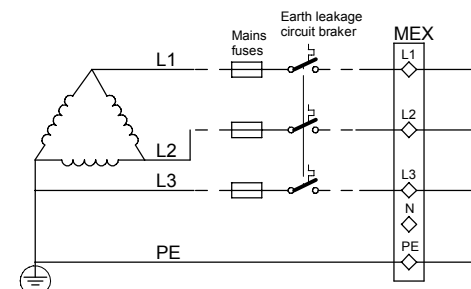


Neutral not requiert if the  
mains transformer is ordered.

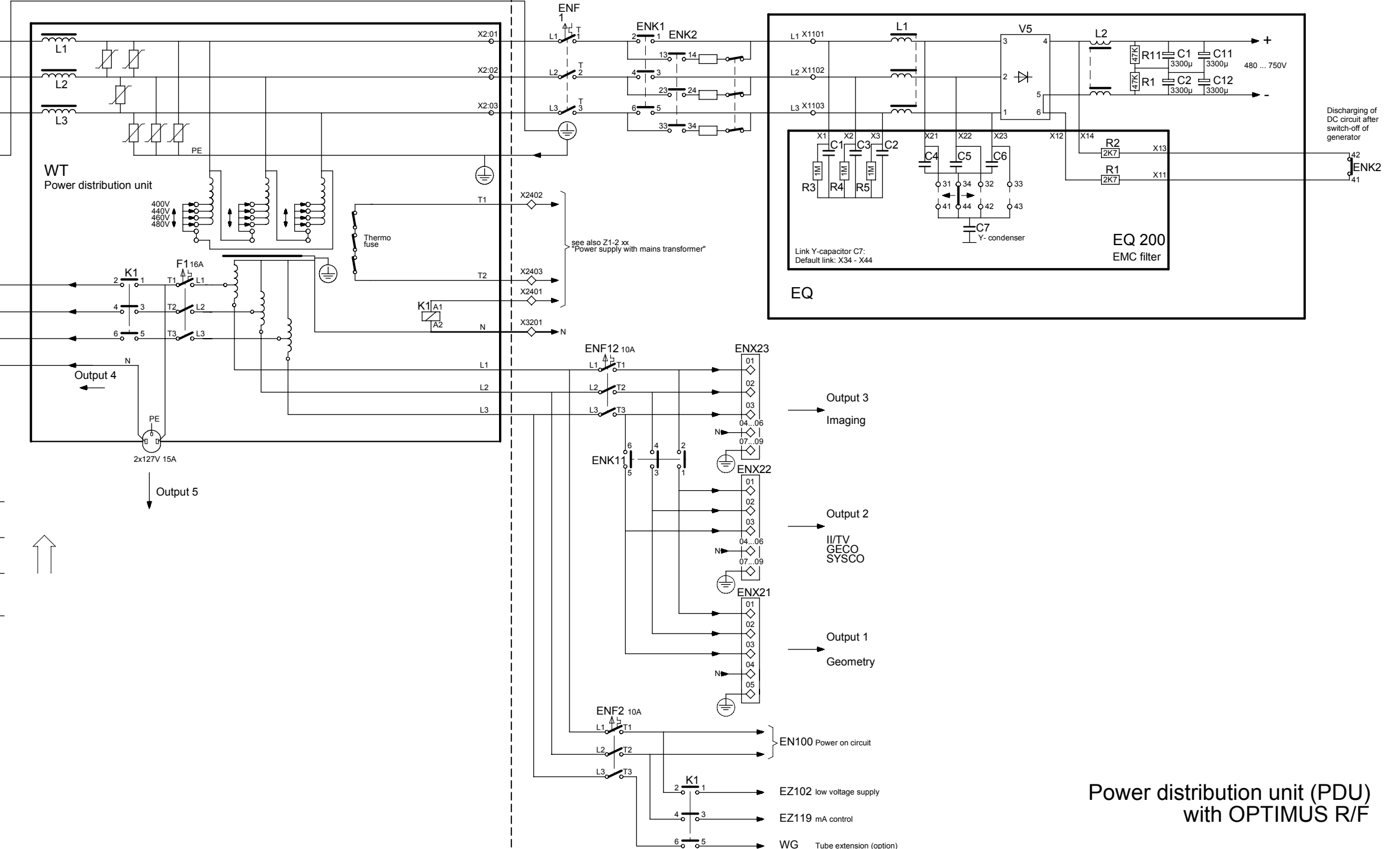
3 phase DELTA,  
balanced or floating earth:  
Mains transformer is required!



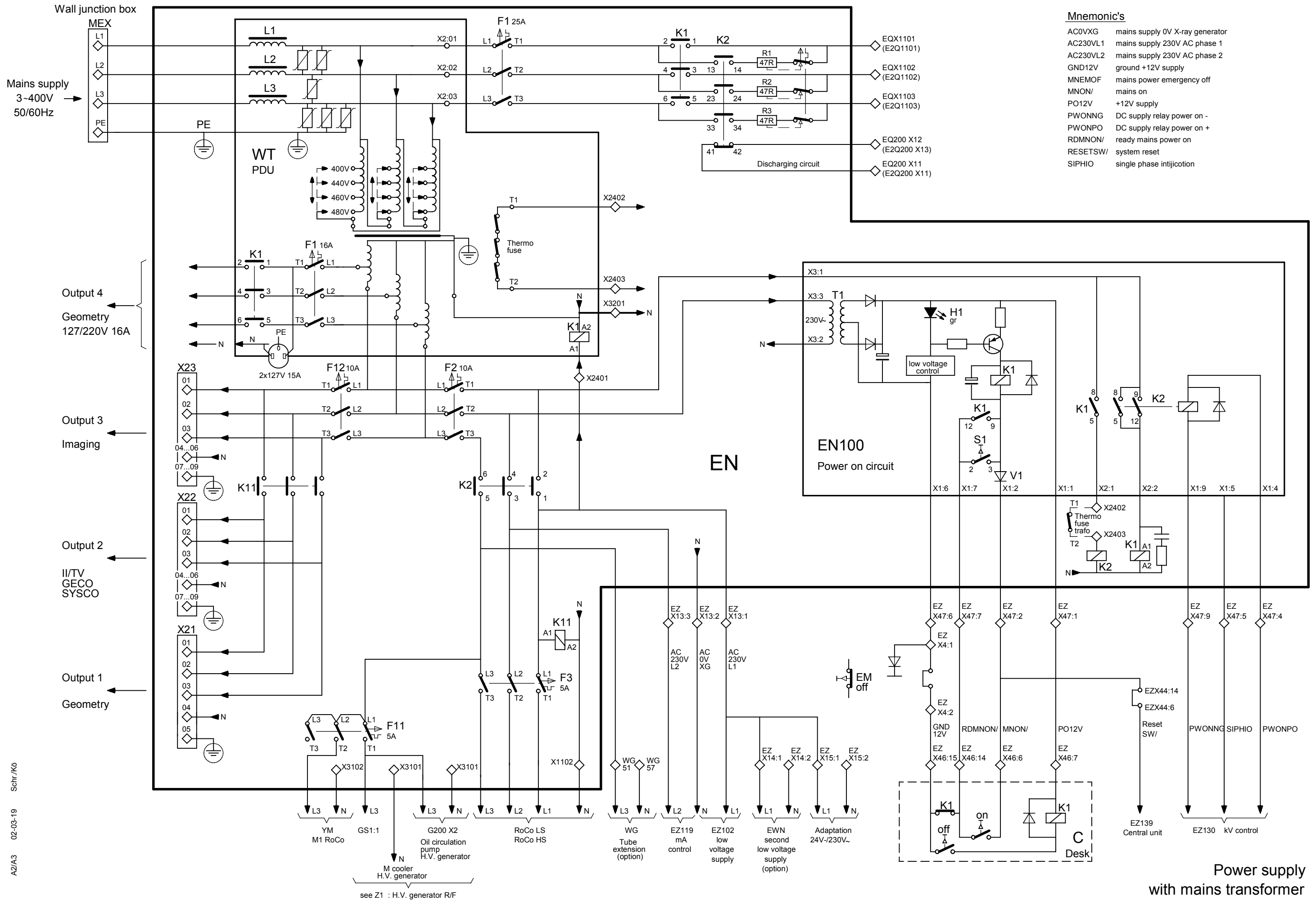
3 phase DELTA, grounded:  
Mains transformer is required!



Connect the link of Y-capacitor (EQ200)  
to the grounded phase.  
See unit manual "Converter R/F"

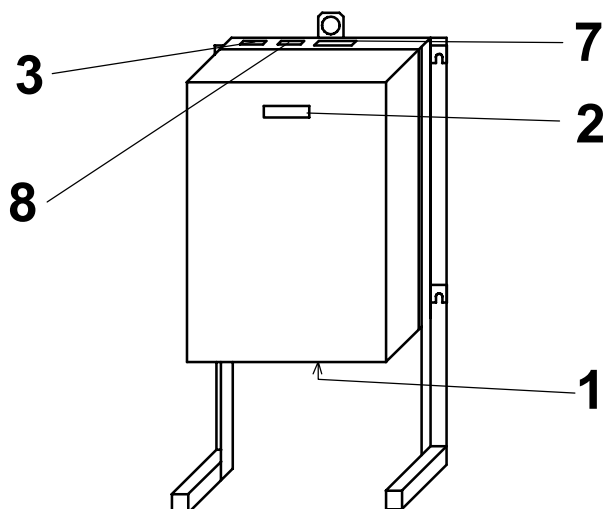


Power distribution unit (PDU)  
with OPTIMUS R/F



Power supply  
with mains transformer

A2/A3 02-03-19 Schr./K6



1

4512 104 7073.

2





**PHILIPS**

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**Philips Medical Systems**  
Development and Manufacturing Centre  
Röntgenstrasse 24  
D-22335 Hamburg/Germany

7

	3~ 50/60 Hz		
	400 V I 1 A		
	480 V 9 A		
			

8

Power Distribution Unit  
Type 9890 000 0260.  
s/n xx 11 xxxx

A4 02-06-11 Schr./Kö  
u01142

Labelling